

This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images,
please do not report the images to the
Image Problem Mailbox.**

CLAIMS

What is claimed is:

- 1 1. A pallet assembly for assembling a fiber optic
2 module that includes a housing, comprising:
3 a pallet; and,
4 a cartridge that is attached to said pallet and
5 supports the fiber optic module housing.
- 1 2. The assembly of claim 1, further comprising a
2 ferrule arm coupled to said cartridge.
- 1 3. The assembly of claim 1, further comprising a clip
2 arm coupled to said cartridge.
- 1 4. The assembly of claim 1, further comprising a
2 swing arm that pushes the fiber optic module housing into a
3 stop of said cartridge.
- 1 5. The assembly of claim 4, wherein said stop has a
2 tapered surface.

1 6. The assembly of claim 1, further comprising a
2 fiber connector shuttle that is adapted to hold a fiber
3 optic cable connector and move relative to said pallet.

1 7. The assembly of claim 1, wherein said pallet
2 includes a fiber optic cable channel.

1 8. The assembly of claim 1, wherein said pallet
2 includes a fiber optic cable pocket.

1 9. The assembly of claim 8, wherein said pallet
2 includes a cover that can enclose said fiber optic cable
3 pocket.

1 10. A pallet assembly for assembling a fiber optic
2 module that includes a housing, a ferrule and a clip,
3 comprising:

4 a pallet; and,

5 cartridge means for coupling the fiber optic module
6 housing to said pallet.

1 11. The assembly of claim 10, further comprising
2 ferrule means for securing the ferrule.

1 12. The assembly of claim 10, further comprising clip
2 means for securing the clip.

1 13. The assembly of claim 10, further comprising
2 biasing means for biasing the fiber optic module housing
3 into a stop of said cartridge means.

1 14. The assembly of claim 13, wherein said stop has a
2 tapered surface.

1 15. The assembly of claim 10, further comprising
2 shuttle means for allowing movement of a fiber optic cable
3 connector relative to said pallet.

1 16. The assembly of claim 10, wherein said pallet
2 includes a fiber optic cable channel.

1 17. The assembly of claim 10, wherein said pallet
2 includes a fiber optic cable pocket.

1 18. The assembly of claim 17, wherein said pallet
2 includes a cover that can enclose said fiber optic cable
3 pocket.

1 19. A method for loading a fiber optic module housing
2 onto a pallet assembly, comprising:

3 loading a fiber optic module onto a cartridge; and,
4 attaching the cartridge to a pallet.

1 20. The method of claim 19, further comprising
2 securing a clip and a ferrule.

1 21. The method of claim 19, further comprising placing
2 a fiber optic cable connector onto a shuttle.

1 22. A pallet assembly for assembling a fiber optic
2 module that includes a housing, a ferrule and a clip,
3 comprising:

4 a pallet that supports the housing;

5 a ferrule arm that is attached to said pallet and
6 secures the ferrule; and,

7 a clip arm that is attached to said pallet and secures
8 the clip.

1 23. The assembly of claim 22, further comprising a
2 cartridge that supports the housing and is attached to said
3 pallet.

1 24. The assembly of claim 23, further comprising a
2 swing arm that pushes the fiber optic module housing into a
3 stop of said cartridge.

1 25. The assembly of claim 24, wherein said stop and
2 swing arm have angled contact surfaces.

1 26. The assembly of claim 22, further comprising a
2 connector shuttle that is adapted to hold a fiber optic
3 cable connector and move relative to said pallet.

1 27. The assembly of claim 22, wherein said pallet
2 includes a fiber optic cable channel.

1 28. The assembly of claim 22, wherein said pallet
2 includes a fiber optic cable pocket.

1 29. The assembly of claim 28, wherein said pallet
2 includes a cover that can enclose said fiber optic cable
3 pocket.

1 30. A pallet assembly for assembling a fiber optic
2 module that includes a housing, a ferrule and a clip,
3 comprising:

4 a pallet that supports the housing;

5 ferrule means for securing the ferrule; and,

6 clip means for securing the clip.

1 31. The assembly of claim 30, further comprising
2 cartridge means for coupling the housing to said pallet.

1 32. The assembly of claim 31, further comprising bias
2 means for biasing the fiber optic module housing into a
3 stop of said cartridge means.

1 33. The assembly of claim 32, wherein said stop has an
2 angled contact surface.

1 34. The assembly of claim 30, further comprising
2 shuttle means for allowing movement of a fiber optic cable
3 connector relative to said pallet.

1 35. The assembly of claim 30, wherein said pallet
2 includes a fiber optic cable channel.

1 36. The assembly of claim 30, wherein said pallet
2 includes a fiber optic cable pocket.

1 37. The assembly of claim 36, wherein said pallet
2 includes a cover that can enclose said fiber optic cable
3 pocket.

1 38. A method for loading components of a fiber optic
2 module onto a pallet assembly housing, comprising:

3 loading a housing onto a pallet;

4 securing a ferrule; and,

5 securing a clip.

1 39. The method of claim 38, further comprising placing
2 a fiber optic cable connector onto a shuttle.

1 40. A pallet assembly for assembling a fiber optic
2 module that includes a housing, comprising:
3 a pallet; and,
4 a cartridge that is attached to said pallet and
5 supports the housing, said cartridge having a stop; and,
6 a swing arm that is mounted to said pallet.

1 41. The assembly of claim 40, wherein said stop and
2 swing arm have angled contact surfaces.

1 42. The assembly of claim 40, further comprising a
2 connector shuttle that is adapted to hold a fiber optic
3 cable connector and move relative to said pallet.

1 43. The assembly of claim 40, wherein said pallet
2 includes a fiber optic cable channel.

1 44. The assembly of claim 40, wherein said pallet
2 includes a fiber optic cable pocket.

1 45. The assembly of claim 44, wherein said pallet
2 includes a cover that can enclose said fiber optic cable
3 pocket.

1 46. A pallet assembly for assembling a fiber optic
2 module that includes a housing, comprising:
3 a pallet;
4 a cartridge that is attached to said pallet and
5 supports the housing, said cartridge having a stop; and,
6 bias means for pushing the housing into said stop.

1 47. The assembly of claim 46, wherein said stop and
2 said bias means have angled contact surfaces.

1 48. The assembly of claim 46, further comprising
2 shuttle means for allowing movement of a fiber optic cable
3 connector relative to said pallet.

1 49. The assembly of claim 46, wherein said pallet
2 includes a fiber optic cable channel.

1 50. The assembly of claim 46, wherein said pallet
2 includes a fiber optic cable pocket.

1 51. The assembly of claim 50, wherein said pallet
2 includes a cover that can enclose said fiber optic cable
3 pocket.

1 52. A method for loading a fiber optic module housing
2 onto a pallet assembly, comprising:

3 loading a fiber optic module onto a pallet wherein the
4 fiber optic module housing is pushed into a stop.

1 53. The method of claim 52, further comprising placing
2 a fiber optic cable connector onto a shuttle.

1 54. A pallet assembly for assembling a fiber optic
2 module that includes a housing, comprising:

3 a pallet that supports a housing, said pallet having a
4 fiber optic cable pocket.

1 55. The assembly of claim 54, further comprising a
2 connector shuttle that is adapted to hold a fiber optic
3 cable connector and move relative to said pallet.

1 56. The assembly of claim 54, wherein said pallet
2 includes a fiber optic cable channel.

1 57. The assembly of claim 54, wherein said pallet
2 includes a cover that can enclose said fiber optic cable
3 pocket.

1 58. A pallet assembly for assembling a fiber optic
2 module with a fiber optic cable, comprising:
3 a pallet having means for restraining a coiled portion
4 of a fiber optic cable.

1 59. The assembly of claim 58, further comprising
2 shuttle means for allowing movement of a fiber optic cable
3 connector relative to said pallet.

1 60. The assembly of claim 58, wherein said pallet
2 includes a fiber optic cable channel.

1 61. The assembly of claim 58, wherein said means
2 includes a fiber optic cable pocket.

1 62. The assembly of claim 61, wherein said means
2 includes a cover that can enclose said fiber optic cable
3 pocket.

4 63. A method for loading a fiber optic module housing
5 onto a pallet assembly, comprising:
6 loading a fiber optic module onto a pallet; and,

7 placing a fiber optic cable into a pocket of the
8 pallet.

1 64. The method of claim 63, further comprising placing
2 a fiber optic cable connector onto a shuttle.

1 65. A pallet assembly for assembling a fiber optic
2 module, comprising:

3 a pallet that supports a housing, said pallet having a
4 fiber optic cable channel.

1 66. The assembly of claim 65, further comprising a
2 connector shuttle that is adapted to hold a fiber optic
3 cable connector and move relative to said pallet.

1 67. A pallet assembly for assembling a fiber optic
2 module with a fiber optic cable, comprising:

3 a pallet having means for restraining a straight
4 portion of a fiber optic cable.

1 68. The assembly of claim 67, further comprising
2 shuttle means for allowing movement of a fiber optic cable
3 connector relative to said pallet.

1 69. A method for loading a fiber optic module housing
2 onto a pallet assembly, comprising:
3 loading a fiber optic module onto a pallet; and,
4 placing a fiber optic cable into a channel of the
5 pallet.

1 70. The method of claim 69, further comprising placing
2 a fiber optic cable connector onto a shuttle.

1 71. A pallet assembly for assembling a fiber optic
2 module with a fiber optic cable that terminates with a
3 connector, comprising:
4 a pallet that supports a housing; and,
5 a shuttle that can move relative to said pallet and
6 supports the connector.

1 72. A pallet assembly for assembling a fiber optic
2 module with a fiber optic cable that terminates with a
3 connector, comprising:
4 a pallet having shuttle means for allowing movement of
5 the connector.

1 73. A method for loading a fiber optic module housing
2 onto a pallet assembly, comprising:
3 loading a fiber optic module onto a pallet; and,
4 placing a fiber optic cable connector onto a shuttle
5 that is coupled to the pallet.

1 74. A pallet loader station for coupling a fiber optic
2 cable and a ferrule to a fiber optic module housing,
3 comprising:
4 a pallet station;
5 a rail located adjacent to said pallet station;
6 a fiber guide tray that has a tapered channel; and,
7 a gripper coupled to said rail and located adjacent to
8 said fiber guide tray.

1 75. The station of claim 74, further comprising a
2 rotating wheel coupled to said gripper.

1 76. The station of claim 74, further comprising an
2 actuator coupled to said fiber guide tray.

1 77. The station of claim 74, further comprising a
2 safety switch coupled to said gripper.

1 78. The station of claim 77, further comprising a
2 sensor that enables said safety switch when said gripper is
3 in a home position.

1 79. A pallet loader station for coupling a fiber optic
2 cable and a ferrule to a fiber optic module housing,
3 comprising:

4 a pallet station;

5 gripper means for gripping the ferrule;

6 tray means for aligning the ferrule with said gripper
7 means; and,

8 movement means for moving the gripper means to said
9 pallet station.

1 80. The station of claim 79, further comprising
2 rotating means for rotating the ferrule within said pallet
3 station.

1 81. The station of claim 79, further comprising
2 actuator means for moving said tray means between an up
3 position and a down position.

1 82. The station of claim 79, further comprising safety
2 means for controlling actuation of said movement means.

1 83. A method for coupling a ferrule, attached to a
2 fiber optic cable, to a fiber optic module housing located
3 within a pallet station, comprising:
4 pulling the ferrule through a guide channel of a guide
5 tray;
6 gripping the ferrule; and,
7 moving the ferrule into the pallet station to be
8 coupled to the fiber optic module housing.

1 84. The method of claim 83, further comprising moving
2 a rotating wheel into engagement with the gripped ferrule,
3 and rotating the wheel and spinning the ferrule when the
4 ferrule is in the pallet station.

1 85. The method of claim 83, further comprising
2 deactivating a safety switch before moving the ferrule into
3 the pallet station.

1 86. The method of claim 83, further comprising moving
2 the guide tray to a down position before moving the gripped
3 ferrule into the pallet station.

1 87. A docking station for a pallet assembly that
2 supports a fiber optic module which has a housing, a
3 ferrule and a clip, the pallet assembly having a shuttle
4 that supports a fiber optic cable connector, the housing
5 having a plurality of electrical leads, comprising:
6 an optical detector; and,
7 an actuator that moves the shuttle toward said optical
8 detector.

1 88. The station of claim 87, further comprising an
2 electrical connector assembly that engages the leads of the
3 housing.

1 89. The station of claim 88, wherein said electrical
2 connector assembly includes a plurality of spring biases
3 balls.

1 90. The station of claim 87, further comprising an
2 inductive bar that heats a portion of the housing.

1 91. A docking station for a pallet assembly that
2 supports a fiber optic module which has a housing, a
3 ferrule and a clip, the pallet assembly having a shuttle
4 that supports a fiber optic cable connector, the housing
5 having a plurality of electrical leads, comprising:

6 an optical detector; and,

7 actuator means for moving the shuttle toward said
8 optical detector.

1 92. The station of claim 91, further comprising
2 connector means for coupling to all of the leads of the
3 housing.

1 93. The station of claim 92, wherein said electrical
2 connector means includes a plurality of spring biases
3 balls.

1 94. The station of claim 91, further comprising an
2 inductive bar that heats a portion of the housing.

1 95. A method for docking a pallet assembly that
2 supports a fiber optic module which has a housing, a
3 ferrule and a clip, the pallet assembly having a shuttle
4 that supports a fiber optic cable connector, the housing
5 having a plurality of electrical leads, comprising:
6 moving the shuttle toward an optical detector.

1 96. A docking station for a pallet assembly that
2 supports a fiber optic module which has a housing, a
3 ferrule and a clip, the pallet assembly having a shuttle
4 that supports a fiber optic cable connector, the housing
5 having a plurality of electrical leads, comprising:
6 an electrical connector assembly that engages all of
7 the leads of the housing.

1 97. The station of claim 96, wherein said electrical
2 connector assembly includes a plurality of spring biases
3 balls.

1 98. The station of claim 96, further comprising an
2 inductive bar that heats a portion of the housing.

1 99. A docking station for a pallet assembly that
2 supports a fiber optic module which has a housing, a
3 ferrule and a clip, the pallet assembly having a shuttle
4 that supports a fiber optic cable connector, the housing
5 having a plurality of electrical leads, comprising:
6 means for electrically coupling to all of the leads of
7 the housing.

1 100. The station of claim 99, wherein said means
2 includes a plurality of spring biases balls.

1 101. The station of claim 99, further comprising an
2 inductive bar that heats a portion of the housing.

1 102. A method for docking a pallet assembly that
2 supports a fiber optic module which has a housing, a

3 ferrule and a clip, the pallet assembly having a shuttle
4 that supports a fiber optic cable connector, the housing
5 having a plurality of electrical leads, comprising:
6 coupling all of the leads of the housing to a tester
7 circuit.